Provincial Report

Grade 12 Diploma Examinations
June 1986 Administration

September 1986

Student Evaluation

Alberta
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This report contains the statistical summary of the provincial results for the June 1986 administration of the Grade 12 diploma examinations in English 30, English 33, Social Studies 30, Mathematics 30, Biology 30, Chemistry 30, and Physics 30.

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The Conference of Alberta School Superintendents
The Universities Co-ordinating Council
The Public Colleges of Alberta
Alberta Education

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George Bevan
Director
Student Evaluation Branch

SECTION 1: GRADE 12 DIPLOMA EXAMINATIONS PROGRAM

Preface

Following each major administration of the diploma examinations, a report of provincial results is prepared. This document is the report for the June 1986 administration. Each school and school jurisdiction also receives a report of examination results for its students.

The *Provincial Report* consists of general information about the diploma examinations program, followed by information specific to each subject. Letter grade distributions, averages, and standard deviations for school-awarded, diploma examination, and final blended marks are provided. In addition, diploma examination results are presented separately for written response, multiple-choice and selected reporting categories. Examination blueprints, which form the basis for reporting categories, are also included.

The reported figures are based on all students for whom both a school-awarded mark and a diploma examination mark are available. This group constitutes virtually all students completing the examination, and includes students in public and private schools.

The *Provincial Report* is intended to supplement the diploma examination bulletins, school and school jurisdiction reports, content specifications for each subject, and the examinations themselves. Information from these documents should enable teachers, principals, superintendents, and others to make judgments with respect to the quality of student achievement at the provincial level and within schools and school systems.

Judgments about student performance should be applied to the task of improving instruction. Educators in each jurisdiction are encouraged to study the examination results carefully to determine the strengths and weaknesses of their instructional programs. Guidelines for interpreting school and school jurisdiction reports accompany those documents. The Student Evaluation Branch will assist educators in further analysis and interpretation on request.

Introduction

The Grade 12 Diploma Examinations Program, which is an integral part of the high school diploma requirements, is intended to develop and maintain excellence in educational standards through certification of academic achievement. All Grade 12 students in Alberta are now required to write at least ONE diploma examination to receive a high school diploma. Also, mature students may receive credits for a Grade 12 course by writing the appropriate diploma examination without registering in the course.

The Diploma Examinations Program consists of course-specific examinations that are based on the prescribed *Program of Studies for Senior High Schools* for the following Grade 12 courses: English 30, English 33, Social Studies 30, Mathematics 30, Biology 30, Chemistry 30, and Physics 30. Except for English 30 and English 33, the diploma examinations are available in French translation on request. The diploma examinations are administered three times yearly: January, June, and August.

Alberta Education issues two distinct high school diplomas: the General High School Diploma and the Advanced High School Diploma.

General High School Diploma

To earn a General High School Diploma, a student must obtain course credit in either English 30 or English 33 and obtain 100 credits distributed over courses as specified in the *Junior-Senior High School Handbook*. Some students who are working toward the general diploma may wish to obtain credits in other diploma examination courses (i.e. Social Studies 30, Mathematics 30, Biology 30, Chemistry 30, and Physics 30). To obtain credits in these courses, one must also write the appropriate diploma examination regardless of the type of diploma one wishes to receive.

Advanced High School Diploma

The Advanced High School Diploma represents achievement in an academic program that includes language arts (English), social studies, mathematics, and science. To earn an Advanced High School Diploma, a student must satisfy the current course and credit requirements for a General High School Diploma, and obtain course credits in English 30, Social Studies 30, Mathematics 30, and ONE of Biology 30, Chemistry 30, or Physics 30.

Awarding of Course Credits

To obtain credits in Grade 10 (10-level) and Grade 11 (20-level) courses, a student must earn a final mark of 40% or better. A student who has achieved a mark of 50% or higher in a given course is eligible to take the next or higher-rank high school course in that sequence.

To obtain credit in a Grade 12 (30-level) course, a student must earn a final mark of 50% or better. To obtain credit in a Grade 12 diploma examination course, a student must write the appropriate diploma examination and attain a final blended mark of 50% or better. The final blended mark is made up of 50% of the mark awarded by the school and 50% of the diploma examination mark. For example, a student taking Physics 30 might have a mark of 45% from his school and a mark of 57% on the diploma examination. This student would earn credit for Physics 30 because his final mark would be 51%, which is the average of the school and examination marks. For mature students who do not have a school mark or who have a school mark lower than the examination mark, the examination mark is final.

Award of Excellence

When candidates for an Advanced High School Diploma obtain a final average of 80% or higher on the four required diploma examination courses, with not less than 65% in any one of these four required courses, they receive an Award of Excellence. This Award of Excellence is noted on the student's Advanced High School Diploma.

When a student writes two or three of the diploma examinations in Biology 30, Chemistry 30, and Physics 30, the highest of these final course marks is used for diploma purposes and in the calculation of the average for the Award of Excellence.

SECTION 2: ENGLISH 30 DIPLOMA EXAMINATION

The English 30 Diploma Examination consists of two parts: Part A: Written Response and Part B: Reading (Multiple Choice), each worth 50% of the total examination mark.

Table 1 contains percentage distributions for school-awarded marks, diploma examination marks, and final blended marks in English 30. Table 2 contains averages and standard deviations for the written-response questions and the multiple-choice questions. Averages given in Table 2 are based on raw scores, which are the number of marks obtained on each part of the examination.

The total marks possible are identified for the written-response and multiple-choice components.

Averages in both tables are based on the results achieved by 13 112 students. Differences between total averages and component averages are due to rounding.

Table 1

Provincial Percentages of A, B, C, and F Grades, Averages, and Standard Deviation of Scores
English 30

Score (%)	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100)	13.0	8.3	8.7
B (65-79)	38.6	36.4	39.1
C (50-64)	39.3	44.1	46.9
F (0-49)	9.1	11.1	5.4
Average (%)	64.6	63.2	64.3
Standard Deviation	12.2	11.5	10.7

Table 2

Multiple-Choice and Written-Response Raw Score Totals
English 30

Examination Section	Total Marks	Weighting (%)	Average	Standard Deviation
Part A: Written Response	50	50	31.6	6.1
Part B: Multiple Choice	79	50	49.8	11.0

Table 3

June 1986 English 30 Diploma Examination Blueprint
Part A: Written Response

Description of the Writing Assignment	Reporting Category	Proportion of Total Mark (%)
Minor Assignments		
The two writing assignments are connected to the reading of literary selections contained in the examination. In Assignment One, the students are required to respond to the selections in a personal context. In Assignment Two, the students are required to understand, analyze, and evaluate techniques used in literature and to synthesize their thoughts clearly and correctly in writing.	1. Thought & Detail	15
	2. Writing Skills	5
Major Assignment		
The writing assignment sets a specific writing task but allows the student to choose his own method of development and to select supporting details from personal experience with literature that he has studied. The writing assignment is generated from literary selections and requires the students to understand literal and implied meanings and to synthesize their thoughts clearly and correctly in writing.	1. Total Impression	5
	2. Thought & Detail	10
	3. Organization	5
	4. Matters of Choice	5
	5. Matters of Convention	5
		50

Table 4

Percentage Distribution of Scores on English 30: Part A
Minor Assignments (Personal Response and Critical Response)

Score Scale Points	Personal Response Reporting Category		Critical Response Reporting Category	
	Thought & Detail	Writing Skills	Thought & Detail	Writing Skills
5 (Exceptional)	3.2	3.7	2.5	3.7
4 (Proficient)	31.2	40.3	23.3	34.8
3 (Satisfactory)	59.0	50.3	55.2	54.1
2 (Limited)	5.8	5.0	17.1	6.0
1 (Poor)	0.5	0.3	0.9	0.5
INS (Insufficient or No Response)	0.3	0.3	1.0	1.0

Table 5

Percentage Distribution of Scores on English 30: Part A
Major Assignment

Score Scale Points	Reporting Category				
	Total Impression	Thought and Detail	Organi-zation	Matters of Choice	Matters of Convention
5 (Exceptional)	3.1	2.9	3.8	4.1	7.0
4 (Proficient)	19.4	18.2	24.0	26.8	38.3
3 (Satisfactory)	53.6	44.6	57.6	57.2	45.3
2 (Limited)	21.8	30.8	13.0	10.2	7.6
1 (Poor)	1.4	2.8	0.9	0.9	1.0
INS (Insufficient or No Response)	0.8	0.8	0.8	0.8	0.8

Table 6

June 1986 English 30 Diploma Examination Blueprint
Part B: Reading (Multiple Choice)

Reporting Category	Questions by Cognitive Level			Examination Emphasis (%)
	Literal Understanding	Inference and Application	Evaluation	
Meanings	2,4,20,59	7,8,9,15,17, 19,34,35,42, 45,47,48,51*, 52,53,54,55, 56,57,67,68, 70,72	1,5,16, 26,43,73	22
Critical Response	21,50	3,10,11,12, 13,18,25,28, 31,32,39,46, 58,61,62,65, 69,80	6,23,27, 40,44,49, 60,64,79	17
Human Experience and Values		14,22,33,36, 37,38,63,66, 71,74,75,76, 77	24,29,30, 41,78	11
Examination Emphasis (%)	4	33	13	50

*Question 51 was deleted from the examination. Student responses to this question indicated that one or more of the alternatives in the question were ambiguously worded.

Table 7

Raw Score Results for English 30 Part B

Reporting Category	Average	Standard Deviation
1. Meanings (32 questions)	21.1	5.1
2. Critical Response (29 questions)	17.1	4.4
3. Human Experience and Values (18 questions)	11.6	2.8

Multiple-Choice Questions

The percentage of students choosing each response for each multiple-choice question is given in Table 8. The correct response (key) for each question is also identified. Schools may use this information in conjunction with the test and with school results on individual items to determine local strengths and weaknesses.

Table 8

Results for Individual Multiple-Choice Questions
English 30

Item	Key	Distribution of Responses (%) A	B	C	D	Item	Key	Distribution of Responses (%) A	B	C	D
1	D	7.0	3.3	5.4	84.3	41	D	8.2	7.2	21.1	63.5
2	A	60.6	3.9	23.4	12.0	42	D	23.8	4.8	21.4	50.0
3	A	53.4	31.2	1.3	14.0	43	D	7.4	6.7	20.5	65.2
4	D	0.8	3.2	8.7	87.4	44	A	59.1	14.1	17.5	9.2
5	C	5.0	16.6	66.1	12.3	45	D	23.7	6.4	19.7	50.1
6	D	0.8	3.3	11.2	84.7	46	D	7.0	7.2	17.3	69.0
7	A	74.2	3.4	20.1	2.3	47	A	45.8	9.4	41.2	3.5
8	C	9.4	2.1	56.6	31.8	48	A	71.9	12.7	5.6	9.7
9	C	22.0	2.5	64.9	10.6	49	B	14.5	45.9	15.5	24.0
10	B	7.2	84.0	4.4	4.3	50	C	13.3	14.8	67.6	4.2
11	B	8.9	64.8	18.5	7.7	51	QUESTION OMITTED				
12	C	2.7	0.9	91.9	4.5	52	D	18.2	6.2	10.0	65.6
13	C	17.2	6.1	67.6	9.0	53	D	8.1	7.9	9.5	74.4
14	C	6.2	13.8	69.3	10.6	54	D	8.1	12.6	24.3	54.9
15	B	7.1	82.2	6.7	3.9	55	A	79.5	7.1	5.8	7.5
16	D	9.0	9.6	16.5	64.8	56	C	17.1	19.2	58.5	5.2
17	A	68.0	18.0	4.5	9.4	57	B	11.3	59.4	19.5	9.8
18	A	61.0	2.9	3.3	32.7	58	D	11.5	13.7	8.1	66.6
19	A	74.5	4.5	8.4	12.5	59	B	27.2	41.6	6.4	24.7
20	B	4.2	84.5	6.7	4.5	60	D	8.0	14.1	33.9	44.0
21	A	51.3	32.5	10.9	5.2	61	A	58.5	7.3	15.7	18.4
22	C	3.7	13.7	70.1	12.5	62	A	62.9	2.0	2.7	32.3
23	C	19.2	12.0	44.1	24.6	63	C	6.0	4.0	72.5	17.5
24	C	12.6	11.4	71.4	4.5	64	D	8.9	14.3	2.6	74.0
25	A	76.5	2.7	13.4	7.4	65	C	3.7	49.4	37.4	9.3
26	C	5.0	22.9	57.0	15.1	66	B	7.3	45.5	11.0	36.1
27	D	20.2	7.0	34.4	38.4	67	C	30.6	13.1	54.4	1.8
28	A	46.6	10.6	32.4	10.3	68	A	47.8	9.0	26.1	16.9
29	B	10.2	54.6	12.1	23.0	69	A	43.8	18.3	25.3	12.4
30	C	5.0	29.7	51.9	13.4	70	D	4.2	7.5	16.0	72.0
31	B	8.5	59.8	17.2	14.4	71	C	10.8	8.9	73.3	6.7
32	C	29.7	2.0	52.4	15.9	72	D	5.7	10.4	15.8	68.1
33	A	92.6	1.7	2.7	3.1	73	A	66.3	7.5	11.8	14.1
34	C	6.5	8.0	79.2	6.4	74	B	10.6	73.4	1.7	14.0
35	D	9.6	11.0	5.8	73.5	75	B	17.6	52.6	5.0	24.4
36	B	6.6	74.7	7.0	11.7	76	A	68.7	7.9	5.7	17.4
37	B	5.8	41.4	26.1	26.7	77	D	14.1	8.9	11.8	64.9
38	B	6.5	72.2	13.3	7.9	78	D	3.3	38.4	8.8	49.1
39	A	61.7	5.6	17.9	14.7	79	D	19.8	19.8	26.2	33.8
40	B	17.3	39.2	17.4	26.1	80	B	12.1	71.5	5.6	10.2

***The sum of the percentages for each question may be less than 100% because the No Response category is not included. This category is not greater than 0.5% for any question.**

SECTION 3: ENGLISH 33 DIPLOMA EXAMINATION

The English 33 Diploma Examination consists of two parts: Part A: Written Response and Part B: Reading (Multiple-Choice), each worth 50% of the total examination mark.

Table 9 contains percentage distributions for school-awarded marks, diploma examination marks, and final blended marks in English 33. Table 10 contains averages and standard deviations for the written-response questions and the multiple-choice questions. Averages given in Table 2 are based on raw scores, which are the number of marks obtained on each part of the examination.

The total marks possible are identified for the written-response and multiple-choice components.

Averages in both tables are based on the results achieved by 5 542 students. Differences between total averages and component averages are due to rounding.

Table 9

Provincial Percentages of A, B, C, and F Grades, Averages, and Standard Deviation of Scores
English 33

Score (%)	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100)	3.2	9.8	3.9
B (65-79)	29.6	45.0	37.5
C (50-64)	51.7	33.8	51.5
F (0-49)	15.5	11.4	7.0
Average (%)	59.2	64.8	62.5
Standard Deviation	11.2	12.3	9.9

Table 10

Multiple-Choice and Written-Response Raw Score Totals
English 33

Examination Section	Total Marks	Weighting (%)	Average	Standard Deviation
Part A: Written Response	50	50	31.9	6.1
Part B: Multiple Choice	68	50	44.6	10.5

Table 11

June 1986 English 33 Diploma Examination Blueprint
Part A: Written Response

Description of the Writing Assignment	Reporting Category	Proportion of Total Mark (%)
Personal Response to Literature Students are required to read a short literary selection that serves as a stimulus for a personal or reflective response.	1. Thought & Detail	10
	2. Organization	5
	3. Matters of Choice	5
	4. Matters of Convention	5
Functional Writing Students are required to write for a specified purpose and audience.	1. Thought & Detail	10
	2. Organization	2.5
	3. Writing Skills	2.5
Response to Visual Communication Writing assignments are connected to a cartoon. Students are required to write about main ideas, communication techniques, and personal reactions.	1. Thought & Detail	5
	2. Writing Skills	5
		50

Table 12

Percentage Distribution of Scores on English 33 Part A
Section I: Personal Response to Literature

Score Scale Points	Reporting Category			
	Thought & Detail	Organization	Matters of Choice	Matters of Convention
5 (Proficient)	2.5	3.7	3.6	5.7
4 (Capable)	26.1	34.4	29.1	40.6
3 (Adequate)	53.3	54.0	58.8	40.4
2 (Limited)	14.6	6.3	6.6	10.5
1 (Poor)	2.4	0.5	0.9	1.8
INS (Insufficient or No Response)	1.0	1.0	1.0	1.0

Table 13

Percentage Distribution of Scores on English 33 Part A
Section II: Functional Writing

Score Scale Points	Reporting Category		
	Thought & Detail	Organization	Writing Skills
5 (Proficient)	2.9	3.2	3.3
4 (Capable)	27.9	31.0	33.6
3 (Adequate)	51.1	55.9	49.0
2 (Limited)	16.4	8.9	12.0
1 (Poor)	1.0	0.3	1.4
INS (Insufficient or No Response)	0.6	0.6	0.6

Table 14

Percentage Distribution of Scores on English 33 Part A
Section III: Response to Visual Communication

Score Scale Points	(Question 1) Reporting Category		(Question 2) Reporting Category	
	Thought & Detail	Writing Skills	Thought & Detail	Writing Skills
5 (Proficient)	3.5	3.8	3.3	3.4
4 (Capable)	23.4	34.2	24.0	32.0
3 (Adequate)	41.8	49.2	39.4	50.8
2 (Limited)	24.5	9.9	24.7	9.9
1 (Poor)	4.9	1.0	5.8	1.2
INS (Insufficient or No Response)	1.9	1.9	2.8	2.8

Table 15

June 1986 English 33 Diploma Examination Blueprint
Part B: Reading (Multiple Choice)

Reporting Category	Questions by Cognitive Level			Examination Emphasis (%)
	Literal Understanding	Inference and Application	Evaluation	
Meanings	14,21,35, 36	7,8,11,12,16, 18,19,22,40, 43,44,45,48, 52,64*,66, 67,69	2,4,23, 34,42, 47,70	21
Relationships of Form and Content		1,5,6,10,24, 37,46,50,65	9,15,25, 55	9
Human Experience and Values		3,13,17,38, 39,49,53,54, 56,57,63,68	20,41,51	11
Life Skills	27*	26,29,30,32, 33,58,60,62	28,31,59, 61	9
Examination Emphasis (%)	4	34	13	50

*Questions 27 and 64 were deleted from the examination. Student responses to these questions indicate that one or more of the alternatives in the questions were ambiguously worded.

Table 16

Raw Score Results for English 33 Part B

Reporting Category	Average	Standard Deviation
1. Meanings (28 questions)	18.8	5.1
2. Relationships: Form and Content (13 questions)	7.8	2.5
3. Human Experience and Values (15 questions)	9.9	2.9
4. Life Skills (12 questions)	8.2	2.0

Multiple-Choice Questions

The percentage of students choosing each response for each multiple-choice question is given in Table 17. The correct response (key) for each question is also identified. Schools may use this information in conjunction with the test and with school results on individual items to determine local strengths and weaknesses.

Table 17

Results for Individual Multiple-Choice Questions
English 33

Item	Key	Distribution of Responses (%) A	B	C	D	Item	Key	Distribution of Responses (%) A	B	C	D
1	D	12.5	3.7	5.3	78.4	36	A	64.9	4.4	21.8	8.7
2	C	5.8	26.5	65.8	1.8	37	C	8.5	17.9	66.2	7.3
3	C	3.7	5.9	80.8	9.6	38	C	14.6	9.6	62.6	13.0
4	D	13.4	22.5	9.4	54.7	39	D	8.1	8.2	9.4	74.2
5	C	31.7	29.0	30.4	8.9	40	A	65.5	6.6	8.4	19.1
6	A	64.0	15.9	9.6	10.5	41	A	54.0	11.8	15.3	18.6
7	C	11.3	11.5	55.4	21.8	42	C	4.5	6.8	78.5	10.0
8	C	4.0	6.3	70.0	19.6	43	D	5.2	18.7	8.1	67.9
9	C	17.4	29.0	38.1	15.5	44	B	16.8	61.1	16.7	5.4
10	D	13.9	14.4	14.9	56.7	45	A	63.6	18.6	6.1	11.7
11	A	80.7	2.6	15.1	1.5	46	C	7.9	78.3	61.8	11.8
12	A	86.7	6.5	4.3	2.5	47	C	21.7	4.8	65.5	7.9
13	A	70.5	6.6	16.6	6.1	48	B	20.5	67.1	7.5	4.8
14	A	92.4	1.9	1.9	3.7	49	C	10.8	19.8	49.7	19.6
15	B	5.9	78.1	4.9	11.0	50	A	69.7	11.3	7.0	11.8
16	B	8.9	80.0	5.4	5.7	51	D	12.4	6.7	16.0	64.6
17	B	13.3	69.3	7.0	10.2	52	A	72.4	11.7	8.6	7.1
18	D	6.7	14.3	5.7	73.3	53	B	10.6	75.3	6.9	7.0
19	B	7.0	78.7	2.1	12.1	54	B	8.9	59.2	8.8	22.9
20	D	9.1	6.1	13.7	71.0	55	B	12.4	60.0	14.5	12.7
21	C	7.8	6.1	73.0	13.0	56	C	12.0	5.4	57.7	24.6
22	B	29.3	55.6	8.2	6.8	57	C	6.5	6.9	66.1	20.1
23	A	55.1	20.5	21.0	3.3	58	B	11.4	79.9	3.2	5.2
24	A	59.8	18.1	5.7	16.3	59	B	1.2	73.9	7.8	16.9
25	D	19.6	15.5	6.9	58.0	60	B	7.1	42.8	19.4	30.4
26	D	43.6	3.8	12.3	40.1	61	A	57.9	9.1	5.9	26.8
27	QUESTION OMITTED					62	D	3.1	8.1	17.8	70.6
28	D	2.0	1.3	3.3	93.3	63	C	13.3	22.0	50.7	13.1
29	C	7.9	8.5	70.4	13.1	64	QUESTION OMITTED				
30	C	1.4	1.2	90.5	6.9	65	A	54.5	11.9	13.2	19.3
31	D	43.4	5.0	3.3	48.3	66	B	10.2	57.6	13.8	17.3
32	D	4.8	5.5	5.7	83.9	67	B	12.7	70.6	7.9	7.5
33	D	27.7	3.2	4.8	64.3	68	B	4.6	81.8	8.0	4.3
34	D	13.7	21.2	19.0	45.9	69	B	7.8	69.1	11.6	10.1
35	A	53.7	6.6	18.8	20.9	70	D	7.2	9.8	23.0	58.5

*The sum of the percentages for each question may be less than 100% because the No Response category is not included. This category is not greater than 1.5% for any question.

SECTION 4: SOCIAL STUDIES 30 DIPLOMA EXAMINATION

The Social Studies 30 Diploma Examination consists of both multiple-choice questions (worth 70% of the total examination mark) and a written-response question (worth 30% of the total examination mark).

Table 18 contains percentage distributions for school-awarded marks, diploma examination marks, and final blended marks in Social Studies 30. Table 19 contains averages and standard deviations for the written-response questions and the multiple-choice questions. Averages are based on raw scores, which are the number of marks obtained on each part of the examination. The total marks possible are identified for the written-response and multiple-choice components.

Averages are based on the results achieved by 11 148 students. Differences between total averages and component averages are due to rounding.

Table 18

Provincial Percentages of A, B, C, and F Grades, Averages, and Standard Deviation of Scores
Social Studies 30

Score (%)	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100)	15.8	17.0	15.2
B (65-79)	37.2	41.3	40.8
C (50-64)	38.6	29.5	37.3
F (0-49)	8.4	12.2	6.8
Average (%)	65.4	66.4	66.2
Standard Deviation	12.6	13.6	12.3

Table 19

Multiple-Choice and Written-Response Raw Score Totals
Social Studies 30

Examination Section	Total Marks	Weighting (%)	Average	Standard Deviation
Written Response	30	30	16.3	4.4
Multiple Choice	69	70	49.1	10.6

Table 20

June 1986 Social Studies 30 Diploma Examination Blueprint
Part A: Multiple Choice

Content Category	Questions by Process Category					Examination Emphasis (%)
	Recall & Comp.	Inquiry Skills A[1]	Inquiry Skills B[2]	Inquiry Skills C[3]	Valuing Skills	
Value Concepts competing values value positions - Topic A - Topic B	10,29,38 68				6,12, 69,70	8
Political and Economic Systems facts, concepts, generalizations	1,2,3,4 5,9,11, 16,17,18, 20,22,23, 26,27,28,	7,30,33	8,19,21, 24,25,31 32,34,35	13,14, 15		31
Co-operation & Conflict Among States facts, concepts, generalizations	39,40,41, 42,43*,44, 47,48,49, 50,51,54, 55,65,66, 67	37,57,59	36,45,46, 52,56,58 60,61,62	53,63 64		31
Examination Emphasis (%)	36	6	18	6	4	70

*Question 43 was deleted from the examination.

[1]Inquiry Skills A -- Identify and focus on the issue and formulate research questions.

[2]Inquiry Skills B -- Gather, organize, analyze, evaluate, and synthesize data.

[3]Inquiry Skills C -- Resolve the issue, apply the decision, and evaluate the decision, process, and action.

Table 21

Raw Score Results for Social Studies 30 Part A

Reporting Category	Average	Standard Deviation
1. Recall & Comprehension (31 questions)*	22.1	5.3
2. Inquiry Skills: Identify Issue (6 questions)	3.9	1.2
3. Inquiry Skills: Gather & Use Data (18 questions)	13.2	3.0
4. Inquiry Skills: Resolve & Decide (6 questions)	4.1	1.4
5. Valuing (8 questions)	5.9	1.7
6. Political & Economic Systems (35 questions)	26.1	5.6
7. Co-operation & Conflict (34 questions)	23.1	5.7

* Recall and Comprehension questions in the Value Concept category in Table 20 are included in Reporting Category 5 (Valuing).

Multiple-Choice Questions

The percentage of students choosing each response for each multiple-choice question is given in Table 22. The correct response (key) for each question is also identified. Schools may use this information in conjunction with the test and with school results on individual items to determine local strengths and weaknesses.

Table 22

Results for Individual Multiple-Choice Questions
Social Studies 30

Item	Key	Distribution of Responses (%) A	B	C	D	Item	Key	Distribution of Responses (%) A	B	C	D
1	A	86.5	4.1	4.0	5.3	36	D	29.7	12.3	6.3	51.7
2	C	3.5	16.3	77.6	2.5	37	B	15.1	54.2	5.9	24.7
3	D	13.4	11.7	5.6	69.2	38	B	11.1	58.5	17.8	12.4
4	A	79.1	6.2	4.4	10.2	39	D	2.1	4.8	4.1	89.1
5	B	25.0	67.2	2.8	4.8	40	C	20.6	19.7	52.2	7.3
6	C	7.5	10.2	65.0	17.3	41	A	63.4	17.7	14.9	4.0
7	D	16.0	3.0	17.4	63.5	42	B	10.5	73.5	5.0	10.9
8	B	4.5	70.7	14.1	10.6	43	QUESTION OMITTED				
9	A	80.8	12.4	2.3	4.4	44	A	79.2	5.5	3.1	12.2
10	A	84.5	2.4	7.4	5.7	45	D	7.3	11.7	15.8	65.1
11	B	6.2	83.1	4.0	6.7	46	C	15.1	6.0	70.9	8.0
12	A	67.1	5.5	16.2	11.1	47	A	38.3	6.3	20.8	34.5
13	C	4.5	7.3	85.8	2.3	48	D	3.7	2.2	3.2	90.9
14	B	13.2	66.2	3.6	16.8	49	A	58.2	22.6	13.9	5.2
15	A	78.6	4.5	6.0	10.9	50	D	13.3	9.1	17.1	60.4
16	D	10.1	20.2	6.5	63.1	51	D	4.9	7.5	7.1	80.5
17	B	17.2	49.0	16.5	17.2	52	A	79.0	4.2	9.5	7.3
18	D	8.1	3.3	7.4	81.3	53	B	10.2	62.1	19.4	8.3
19	D	1.4	3.5	4.9	90.1	54	A	54.1	25.9	7.4	12.4
20	D	8.7	6.4	5.1	79.7	55	C	11.1	12.6	64.2	12.1
21	C	6.2	6.2	74.4	13.0	56	D	6.8	33.1	11.0	49.0
22	B	1.4	86.5	9.1	3.0	57	B	16.6	45.3	15.8	22.3
23	B	2.6	87.6	5.6	4.1	58	B	16.8	62.1	6.1	14.9
24	A	87.3	8.1	2.8	1.9	59	A	86.3	2.8	7.3	3.5
25	D	2.4	2.6	5.6	89.3	60	B	1.3	76.3	16.1	6.3
26	D	8.9	12.4	28.6	50.0	61	B	3.7	75.4	7.6	13.3
27	B	6.5	70.8	18.5	4.1	62	C	5.1	4.4	80.5	10.0
28	B	8.2	68.1	14.4	9.2	63	C	25.5	3.7	64.2	6.5
29	C	16.0	7.4	70.9	5.8	64	D	11.8	7.0	26.4	54.7
30	B	6.0	56.7	13.7	23.6	65	C	3.5	3.4	86.2	6.9
31	C	4.5	3.3	91.1	1.0	66	A	69.3	12.5	3.9	14.3
32	A	81.4	5.5	9.0	4.1	67	B	16.1	64.9	8.2	10.8
33	B	8.5	78.8	3.3	9.4	68	A	72.8	4.4	9.9	12.8
34	D	17.1	14.4	24.9	43.5	69	C	3.1	3.9	85.6	7.3
35	C	8.4	7.0	76.5	8.1	70	C	4.5	3.2	87.2	5.0

*The sum of the percentages for each question may be less than 100% because the No Response category is not included. This category is not greater than 0.2% for any question.

Table 23

June 1986 Social Studies 30 Diploma Examination Blueprint
Part B: Written Response

Description of Writing Assignment	Reporting Category	Proportion of Total Mark (%)
In this assignment, students present one complete and unified essay in which they integrate steps of the inquiry process in dealing with a given issue.	1. Explanation of issue	5
	2. Description and evaluation of an action or actions	10
	3. Presentation and defence of a position on the issue	10
	4. Quality of language and expression	5
		30

Table 24

Percentage Distribution of Scores on Social Studies 30 Part B

Score Scale Points	Reporting Category			
	Explanation of the Issue	Description & Evaluation of Action(s)	Defence of a Position	Quality of Expression
5 (Exceptional)	1.4	2.0	1.1	1.4
4 (Proficient)	13.4	16.4	10.8	17.1
3 (Satisfactory)	37.2	44.3	45.0	63.8
2 (Limited)	34.0	29.9	36.0	16.8
1 (Poor)	13.4	6.0	6.0	0.9
0 (Insufficient or No Response)	0.6	1.4	1.1	0.2

SECTION 5: MATHEMATICS 30 DIPLOMA EXAMINATION

The Mathematics 30 Diploma Examination consists of both multiple-choice questions (worth 80% of the total examination mark) and written-response questions (worth 20% of the total examination mark).

Table 25

June 1986 Mathematics 30 Diploma Examination Blueprint

Subject Matter	Questions By Cognitive Level				Examination Emphasis (%)
	Knowledge	Comprehension	Application	Higher Mental Activities	
Trigonometry	2	3,8,9,10,11	1,5,6,7,12, 13,[1]	4	25
Quadratic Relations	19	14,16,17,21, 22	15,18,23,[2]	20,24	22
Sequences, Series, Limits	25,30	26,27,28,29	31,32,34,[3]	33	18
Statistics	39	37,38,41	36,40,[4]	35	15
Logarithms	42	43,44	45	[5]	9
Polynomial Functions	47	46,48,49,50,52	51		11
Examination Emphasis (%)	11	37	41	11	100

NOTE: Numbers in brackets [ ] indicate the written-response questions.

Provincial Averages

Table 26 contains percentage distributions for school-awarded marks, diploma examination marks, and final blended marks in Mathematics 30. Table 27 contains averages and standard deviations for the written-response questions and the multiple-choice questions. Averages are based on raw scores, which are the number of marks obtained on each part of the examination. The total marks possible are identified for the written-response and multiple-choice components.

Averages are based on the results achieved by 9 386 students. Differences between total averages and component averages are due to rounding.

Table 26

Provincial Percentages of A, B, C, and F Grades, Averages, and Standard Deviation of Scores
Mathematics 30

Score (%)	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100)	18.0	18.5	17.1
B (65-79)	31.0	25.3	28.4
C (50-64)	37.9	28.3	38.7
F (0-49)	13.1	27.9	15.8
Average (%)	64.6	61.3	63.4
Standard Deviation	14.4	18.0	15.4

Table 27

Multiple-Choice and Written-Response Raw Score Totals
Mathematics 30

Examination Section	Total Marks	Weighting (%)	Average	Standard Deviation
Written Response	13	20	7.8	3.5
Multiple Choice	52	80	32.1	8.9

Table 28

Provincial Raw Score Averages for Subtests
Mathematics 30

	Total Marks Possible			Raw Score Averages		
Subtest	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Trigonometry	3	13	16	2.4	7.9	10.3
Quadratic Relations	3	11	14	1.2	6.6	7.8
Sequences, Series, and Limits	2	10	12	1.4	5.7	7.1
Statistics	3	7	10	2.1	4.4	6.5
Logarithms	2	4	6	0.7	2.7	3.4
Polynomial Functions	-	7	7	-	4.7	4.7

Table 29

Provincial Raw Score Averages for Cognitive Levels
Mathematics 30

Subtest	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Knowledge	-	7	7	-	4.2	4.2
Comprehension	-	24	24	-	16.3	16.3
Application	11	16	27	7.1	9.7	16.8
Higher Mental Activities	2	5	7	0.7	1.8	2.5

Multiple-Choice Questions

The percentage of students choosing each response for each multiple-choice question is given in Table 30. The correct response (key) for each question is also identified. Schools may use this information in conjunction with the test and with school results on individual items to determine local strengths and weaknesses.

Table 30

Results for Individual Multiple-Choice Questions
Mathematics 30

Item	Key	Distribution of Responses (%) A	B	C	D	Item	Key	Distribution of Responses (%) A	B	C	D
1	C	3.3	13.9	80.3	2.3	27	C	12.2	2.3	80.5	4.8
2	B	8.9	55.4	16.0	19.6	28	A	86.1	4.8	4.5	4.6
3	D	5.6	18.9	20.3	54.9	29	B	2.2	52.9	18.2	26.7
4	B	23.6	30.5	33.7	11.9	30	B	17.2	50.6	12.3	19.9
5	A	46.8	31.6	16.6	4.7	31	D	19.4	23.3	27.4	29.7
6	B	14.3	59.1	16.8	9.4	32	B	11.6	39.2	8.8	40.4
7	C	13.3	7.9	61.6	17.0	33	A	43.4	25.3	19.4	11.6
8	C	19.8	23.3	43.6	13.2	34	D	7.8	17.4	22.0	52.7
9	A	88.8	4.4	4.2	2.5	35	A	38.7	11.1	27.7	22.2
10	B	13.8	75.2	5.6	5.3	36	A	78.2	8.5	3.7	9.5
11	D	5.6	3.4	26.4	64.6	37	C	9.3	24.2	53.9	12.4
12	C	11.3	14.2	66.7	7.6	38	D	2.6	22.0	9.4	65.9
13	C	8.8	21.4	59.5	9.9	39	A	80.0	11.2	6.7	2.0
14	C	4.8	9.8	70.3	15.1	40	B	10.7	62.8	22.2	4.1
15	D	3.9	17.4	4.5	74.1	41	D	12.5	8.8	15.8	62.8
16	D	15.9	7.2	16.7	60.2	42	A	63.2	17.9	8.7	10.1
17	D	8.3	20.2	16.3	55.1	43	A	64.5	12.2	11.7	11.5
18	A	81.7	6.3	4.4	7.6	44	D	15.2	6.5	6.6	71.4
19	D	5.3	5.7	21.1	67.9	45	A	71.0	13.0	7.6	8.3
20	D	24.3	23.2	26.6	25.7	46	A	74.7	12.5	7.5	5.0
21	D	5.2	23.6	9.5	61.7	47	C	8.8	2.9	49.7	38.5
22	C	4.9	2.5	72.4	20.1	48	C	5.4	19.8	63.3	11.5
23	A	48.4	21.6	23.1	6.6	49	B	5.1	82.3	7.7	4.8
24	B	15.9	42.8	26.1	14.6	50	D	5.4	12.9	12.1	69.5
25	A	56.3	15.4	5.4	22.8	51	A	59.0	8.3	21.9	10.5
26	B	6.3	79.4	9.8	4.2	52	A	68.0	14.5	10.1	6.4

*The sum of the percentages for some questions is less than 100% because the No Response category is not included. This category does not exceed 1.0% for any question.

Table 31

Distribution of Marks for Written-Response Questions
Mathematics 30

Question	Students Obtaining Each Mark (%)				
	NR*	0	1	2	3
1	1.7	13.7	4.1	8.8	71.6
2	23.2	17.8	25.9	5.5	27.7
3	4.1	18.9	12.2	64.8	-
4	5.8	13.7	13.9	8.5	58.0
5	11.4	45.8	18.1	24.7	-

*No Response

The total number of marks possible, the average mark awarded to students, and the difficulty level for each written-response question are summarized in Table 32. The difficulty level is the average divided by total marks possible.

Table 32

Average Marks Awarded for Written-Response Questions
Mathematics 30

Question	Total Marks	Average	Difficulty Level
1	3	2.4	0.79
2	3	1.2	0.40
3	2	1.4	0.71
4	3	2.1	0.68
5	2	0.7	0.34

SECTION 6: BIOLOGY 30 DIPLOMA EXAMINATION

The Biology 30 Diploma Examination consists of both multiple-choice questions (worth 80% of the total examination mark) and written-response questions (worth 20% of the total examination mark).

Table 33

June 1986 Biology 30 Diploma Examination Blueprint

Subject Matter	Questions By Cognitive Level			Examination Emphasis (%)
	Knowledge	Comprehension and Application	Higher Mental Activities	
Cellular Processes	1,2,3	4,5,6,[1]	7	10
Homeostatic Mechanisms	8	9	10	3
Nutrition	11,14,15, 18,23	12,16,17,19,20, 21,22	13,[2]	19
Circulation	24,25,26, 28,29	27,30,31,32,33, [4]	34,35	16
Gas Exchange	36,37	38,39,40	41	6
Metabolism	42	43,44	45	4
Excretion	46,47,48	49,50,51,52,[5]	53	11
Nervous & Hormonal System	54,55,56,57, 58,59	60,61,62,63,64, 65,66,67,68,[3]	69	18
Movement	70	71,72		3
Human Reproduction	73,74,77	75,76,78,[6]	79,80	10
Examination Emphasis (%)	30	53	17	100

NOTE: Numbers in brackets [ ] indicate the written-response questions. In the table above, those questions identified with science process skills from the multiple-choice section of the examination are 10, 30, 35, 38, 66, 69, 79, and 80; those from the written-response section are 1, 2, 4, 5, and 6. In the examination, science process skills received an emphasis of 26%.

Provincial Averages

Table 34 contains percentage distributions for school-awarded marks, diploma examination marks, and final blended marks in Biology 30. Table 35 contains averages and standard deviations for the written-response questions and the multiple-choice questions. Averages are based on raw scores, which are the number of marks obtained on each part of the examination. The total marks possible are identified for the written-response and multiple-choice components.

Averages are based on the results achieved by 9 736 students. Differences between total averages and component averages are due to rounding.

Table 34

Provincial Percentages of A, B, C, and F Grades, Averages, and Standard Deviation of Scores
Biology 30

Score (%)	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100)	19.7	21.0	19.9
B (65-79)	34.2	29.8	32.3
C (50-64)	37.7	29.5	37.2
F (0-49)	8.4	19.7	10.6
Average (%)	66.3	64.5	65.8
Standard Deviation	13.1	16.3	14.1

Table 35

Multiple-Choice and Written-Response Raw Score Totals
Biology 30

Examination Section	Total Marks	Weighting (%)	Average	Standard Deviation
Written Response	20	20	11.2	4.3
Multiple Choice	80	80	53.2	13.0

Table 36

Provincial Raw Score Averages for Subtests
Biology 30

Subtest	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Cellular Processes	3	7	10	0.9	5.0	6.0
Homeostatic Mechanisms	-	3	3	-	2.1	2.1
Nutrition	6	13	19	4.0	9.0	12.9
Circulation	4	12	16	2.4	8.0	10.4
Gas Exchange	-	6	6	-	4.3	4.3
Metabolism	-	4	4	-	2.1	2.1
Excretion	3	8	11	1.8	5.0	6.8
Nervous & Hormonal Systems	2	16	18	0.9	10.0	10.9
Movement	-	3	3	-	2.2	2.2
Human Reproduction	2	8	10	1.2	5.5	6.7
Process Skills	18	8	26	10.3	5.1	15.4

Table 37

Provincial Raw Score Averages for Cognitive Levels
Biology 30

Cognitive Levels	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Knowledge	-	30	30	-	21.0	21.0
Comprehension and Application	14	39	53	7.3	25.9	33.2
Higher Mental Activities	6	11	17	4.0	6.3	10.3

Multiple-Choice Questions

The percentage of students choosing each response for each multiple-choice question is given in Table 38. The correct response (key) for each question is also identified. Schools may use this information in conjunction with the test and with school results on individual items to determine local strengths and weaknesses.

Table 38

Results for Individual Multiple-Choice Questions
Biology 30

Item	Key	Distribution of Responses (%) A	B	C	D	Item	Key	Distribution of Responses (%) A	B	C	D
1	A	80.4	5.8	6.7	7.0	41	A	26.4	31.3	14.4	27.8
2	B	7.6	74.6	6.9	10.8	42	B	32.1	45.1	9.1	13.6
3	A	87.7	4.3	6.3	1.6	43	C	40.2	7.3	45.1	7.3
4	A	83.9	7.7	1.9	6.5	44	C	6.4	14.5	67.6	11.5
5	C	9.2	13.3	69.5	8.0	45	B	4.6	55.2	5.9	34.2
6	D	2.6	16.5	53.1	27.8	46	C	18.1	4.7	49.9	27.3
7	A	79.6	11.3	3.8	5.2	47	D	3.1	2.6	21.5	72.8
8	A	75.3	2.6	7.5	14.5	48	B	5.2	63.9	22.3	8.5
9	D	2.8	11.8	10.6	74.7	49	D	9.6	19.8	3.5	67.1
10	D	10.8	8.0	17.4	63.8	50	D	3.4	13.6	14.8	68.2
11	C	6.7	16.9	61.7	14.6	51	B	19.0	61.3	13.0	6.6
12	C	2.8	1.1	93.8	2.3	52	B	4.8	66.3	4.8	24.1
13	C	8.3	22.7	48.2	20.8	53	C	8.7	31.6	49.7	10.0
14	B	5.2	73.4	3.5	17.9	54	B	3.8	70.3	9.9	16.0
15	D	1.4	1.9	15.7	80.9	55	B	6.4	80.1	8.1	5.3
16	A	59.8	20.2	12.8	7.1	56	B	13.9	79.9	4.1	2.1
17	D	5.4	3.8	5.9	84.8	57	D	11.7	4.5	7.9	75.9
18	D	23.5	27.4	4.2	44.9	58	A	80.7	3.9	9.7	5.6
19	C	9.2	28.6	44.2	18.0	59	C	5.5	13.4	40.9	40.1
20	D	10.5	4.2	12.5	72.6	60	D	12.6	10.9	13.3	63.2
21	A	79.7	7.4	9.8	3.1	61	B	6.3	72.2	9.0	12.4
22	B	16.3	77.6	4.5	1.6	62	C	18.5	8.1	38.3	35.1
23	C	19.3	2.0	75.2	3.4	63	D	16.4	31.0	11.2	41.3
24	C	4.7	2.8	86.2	6.3	64	B	40.5	41.6	6.2	11.6
25	A	85.7	4.6	7.1	2.6	65	B	12.4	60.1	10.3	17.1
26	D	5.3	8.4	13.4	72.9	66	C	3.5	14.1	67.4	14.9
27	A	61.2	16.7	7.8	14.2	67	A	69.4	14.0	2.8	13.7
28	C	8.5	6.9	72.7	11.9	68	A	70.8	7.6	15.6	5.9
29	C	11.1	20.5	48.4	19.9	69	C	9.5	36.0	43.4	11.0
30	B	14.5	45.7	30.3	9.5	70	B	16.6	73.7	3.3	6.4
31	B	10.0	72.9	10.2	6.9	71	D	1.9	4.0	4.3	89.8
32	C	4.9	14.4	77.7	3.0	72	D	20.9	10.1	11.3	57.4
33	A	56.5	26.2	7.6	9.6	73	C	23.8	15.3	56.9	3.9
34	C	34.8	6.9	53.1	5.1	74	B	15.6	66.2	11.7	6.4
35	A	63.9	28.6	3.4	4.0	75	D	5.2	4.2	35.6	54.9
36	C	5.7	6.0	81.8	6.5	76	C	1.4	3.8	85.4	9.4
37	C	5.5	9.9	79.4	5.2	77	B	17.1	56.7	11.4	14.7
38	D	4.3	10.8	6.4	78.5	78	D	2.1	4.7	9.7	83.4
39	B	13.0	82.1	2.6	2.2	79	B	11.6	69.3	5.1	13.9
40	B	13.4	76.6	3.3	6.7	80	B	8.3	76.8	9.9	4.9

***The sum of the percentages for some questions is less than 100% because the No Response category is not included. This category does not exceed 0.3% for any question.**

Table 39

Distribution of Marks for Written-Response Questions
Biology 30

Question	Percentage of Students Obtaining Each Mark							
	NR*	0	1	2	3	4	5	6
1	0.2	33.2	48.2	8.8	9.6	-	-	-
2	8.6	6.9	2.0	7.0	10.8	13.4	13.5	37.6
3	1.2	33.4	38.0	27.4	-	-	-	-
4	2.9	7.6	15.5	28.8	15.9	29.3	-	-
5	0.7	10.8	26.4	36.4	25.7	-	-	-
6	1.0	24.6	26.2	48.2	-	-	-	-

*No Response

The total number of marks possible, the average mark awarded to students, and the difficulty level for each written-response question are summarized in Table 40. The difficulty level is the average divided by the total marks possible.

Table 40

Average Marks Awarded for Written-Response Questions
Biology 30

Question	Total Marks	Average	Difficulty Level
1	3	0.9	0.32
2	6	4.0	0.66
3	2	0.9	0.46
4	4	2.4	0.60
5	3	1.8	0.59
6	2	1.2	0.61

SECTION 7: CHEMISTRY 30 DIPLOMA EXAMINATION

The Chemistry 30 Diploma Examination consists of both multiple-choice questions (worth 80% of the total examination mark) and written-response questions (worth 20% of the total examination mark).

Table 41

June 1986 Chemistry 30 Diploma Examination Blueprint

Subject Matter	Questions By Cognitive Level			Examination Emphasis (%)
	Knowledge	Comprehension and Application	Higher Mental Activities	
Chemical Energetics	1,2,5,6,7	3,4,8,9,10,12, 13,14,15,16, 17,18	11,[1]	33
Acids and Bases	19,20,23, 34,36	22,24,25,28, 29,31,32,35,37, [2]	21,26,27, 30,33	34
Oxidation-Reduction	38,39,40,43, 46,49,50, 54,55	42,44,45,51, 52,53,56,[3]	41,47,48	33
Examination Emphasis (%)	35	49	16	100

NOTE: Numbers in brackets [] indicate the written-response questions.

In the table above, those questions identified with science process skills from the multiple-choice section of the examination are 6, 7, 8, 12, 13, 14, 19, 21, 22, 24, 26, 27, 30, 32, 33, 35, 41, 47, 48, 50, 51, 52, 53, and 55; those from the written-response sections are 1, 2, and 3. In the examination, science process skills received an emphasis of 53%.

Provincial Averages

Table 42 contains percentage distributions for school-awarded marks, diploma examination marks, and final blended marks in Chemistry 30. Table 43 contains averages and standard deviations for the written-response questions and the multiple-choice questions. Averages are based on raw scores, which are the number of marks obtained on each part of the examination. The total marks possible are identified for the written-response and multiple-choice components.

Averages are based on the results achieved by 8 518 students. Differences between total averages and component averages are due to rounding.

Table 42

Provincial Percentages of A, B, C, and F Grades, Averages, and Standard Deviation of Scores
Chemistry 30

Score (%)	School-Awarded Marks	Diploma Examination Mark	Final Blended Mark
A (80-100)	21.8	21.9	20.8
B (65-79)	32.8	26.3	31.0
C (50-64)	35.2	28.7	34.5
F (0-49)	10.2	23.2	13.7
Average (%)	66.4	63.6	65.4
Standard Deviation	14.1	17.7	15.2

Table 43

Multiple-Choice and Written-Response Raw Score Totals
Chemistry 30

Examination Section	Total Marks	Weighting (%)	Average	Standard Deviation
Written Response	14	20	7.6	3.4
Multiple Choice	56	80	36.9	9.7

Table 44

Provincial Raw Score Averages for Subtests
Chemistry 30

Subtest	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Chemical Energetics	5	18	23	2.3	12.7	15.0
Acids and Bases	5	19	24	3.0	11.9	15.0
Oxidation-Reduction	4	19	23	2.2	12.2	14.4
Process Skills	14	24	38	7.6	15.7	23.3

Table 45

Provincial Raw Score Averages for Cognitive Levels
Chemistry 30

Cognitive Levels	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Knowledge	-	19	19	-	13.5	13.5
Comprehension and Application	9	28	37	5.3	17.9	23.1
Higher Mental Activities	5	9	14	2.3	5.5	7.8

Multiple-Choice Questions

The percentage of students choosing each response for each multiple-choice question is given in Table 46. The correct response (key) for each question is also identified. Schools may use this information in conjunction with the test and with school results on individual items to determine local strengths and weaknesses.

Table 46

Results for Individual Multiple-Choice Questions
Chemistry 30

Item	Key	Distribution of Responses (%) A	B	C	D	Item	Key	Distribution of Responses (%) A	B	C	D
1	C	17.7	6.2	58.3	17.6	29	D	3.4	5.2	26.6	64.7
2	A	81.0	8.4	4.4	6.2	30	D	3.7	20.6	8.7	66.9
3	C	2.0	14.2	74.7	9.1	31	C	4.4	6.0	75.3	14.4
4	A	62.6	13.3	16.1	7.8	32	D	13.4	20.5	11.2	54.4
5	C	9.9	12.4	75.2	2.5	33	B	28.2	40.6	20.4	10.7
6	A	68.8	7.5	11.7	11.9	34	D	1.6	19.2	5.6	73.6
7	C	9.2	2.2	86.1	2.5	35	B	7.4	74.6	5.1	12.9
8	C	1.7	1.6	87.6	9.0	36	D	4.7	14.3	10.3	70.6
9	B	12.1	64.9	7.9	15.0	37	C	10.3	14.0	42.5	33.1
10	A	77.4	7.1	6.5	8.7	38	D	7.5	9.2	8.0	75.2
11	B	36.1	51.7	8.6	3.5	39	C	4.7	5.8	71.9	17.6
12	C	6.9	14.2	73.5	5.2	40	D	4.3	12.9	12.4	70.3
13	B	6.1	80.6	7.9	5.2	41	A	64.7	9.5	12.0	13.8
14	C	7.4	5.8	64.2	22.6	42	C	4.3	28.4	54.0	13.1
15	A	83.0	9.8	2.2	5.0	43	B	13.6	73.8	9.2	3.4
16	C	8.8	12.5	73.9	4.6	44	D	13.1	12.6	13.2	61.0
17	D	11.8	22.4	12.3	53.3	45	C	7.6	28.5	52.1	11.5
18	C	8.8	24.6	50.0	16.6	46	B	14.6	60.7	10.1	14.5
19	D	8.5	4.9	17.7	68.8	47	B	14.4	61.8	8.1	15.6
20	D	10.6	6.0	5.1	78.4	48	A	69.1	13.0	7.0	10.5
21	A	75.7	13.3	7.5	3.5	49	B	5.9	84.2	6.7	2.9
22	C	11.1	11.1	66.9	10.9	50	A	63.2	17.8	4.7	14.2
23	B	5.5	77.7	4.4	12.4	51	D	15.1	7.7	13.6	63.5
24	C	17.4	15.6	48.0	18.9	52	D	8.1	14.5	17.0	60.0
25	B	13.1	69.3	10.0	7.5	53	C	9.3	7.9	69.6	13.1
26	D	3.3	7.7	24.1	64.9	54	D	3.0	14.1	10.7	72.0
27	D	8.0	16.8	25.9	49.0	55	A	43.4	39.9	8.9	7.6
28	D	5.0	21.2	42.7	31.0	56	A	49.8	16.4	9.5	23.3

*The sum of the percentages for some questions is less than 100% because the No Response category is not included. This category does not exceed 1.0% for any question.

Table 47

Distribution of Marks for Written-Response Questions
Chemistry 30

Question	Students Obtaining Each Mark (%)						
	NR*	0	1	2	3	4	5
1	3.2	9.2	18.5	25.6	21.2	14.1	8.3
2	0.4	4.5	10.6	17.9	25.2	25.6	15.8
3	6.1	16.7	17.3	11.5	12.6	35.7	-

*No Response

The total number of marks possible, the average mark awarded to students, and the difficulty level for each written-response question are summarized in Table 48. The difficulty level is the average divided by total marks possible.

Table 48

Average Marks Awarded for Written-Response Questions
Chemistry 30

Question	Total Marks	Average	Difficulty Level
1	5	2.3	0.46
2	5	3.0	0.61
3	4	2.2	0.55

SECTION 8: PHYSICS 30 DIPLOMA EXAMINATION

The Physics 30 Diploma Examination consists of both multiple-choice questions (worth 80% of the total examination mark) and written-response questions (worth 20% of the total examination mark).

Table 49

June 1986 Physics 30 Diploma Examination Blueprint

Subject Matter	Questions By Cognitive Level: Knowledge	Comprehension and Application	Higher Mental Activities	Examination Emphasis (%)
Light	1,12,14, 15,16	2,3,5,7, 8,10,11,13	4,6,9	23
Electric and Magnetic Fields	17,18,20,22, 27,29,31,32	19,21,23,24, 26,30,[2]	25,28	27
EM Radiation	33,34,36, 37,39	38,[1]	35	14
Structure of Matter	42,46,48	40,41,43,44,[3]	45,47,49	20
Modern Physical Theories	53,55,56	52,54,[4]	50,51	16
Examination Emphasis (%)	34	50	16	100

NOTE: Numbers in brackets [] indicate the written-response questions.

In the table above, those questions identified with science process skills from the multiple-choice section of the examination are 6, 9, 11, 13, 25, 35, 38, 43, 44, 45, 47, 49, and 50; those from the written-response sections are 1, 2, and 3. In the examination, science process skills received an emphasis of 38%.

Provincial Averages

Table 50 contains percentage distributions for school-awarded marks, diploma examination marks, and final blended marks in Physics 30. Table 51 contains averages and standard deviations for the written-response questions and the multiple-choice questions. Averages are based on raw scores, which are the number of marks obtained on each part of the examination. The total marks possible are identified for the written-response and multiple-choice components.

Averages are based on the results achieved by 5 141 students. Differences between total averages and component averages are due to rounding.

Table 50

Provincial Percentages of A, B, C, and F Grades, Averages, and Standard Deviation of Scores
Physics 30

Score (%)	School-Awarded Marks	Diploma Examination Mark	Final Blended Mark
A (80-100)	24.3	23.2	22.7
B (65-79)	38.4	28.3	34.8
C (50-64)	30.5	28.6	32.5
F (0-49)	6.8	20.0	10.0
Average (%)	68.6	65.1	67.2
Standard Deviation	13.2	17.1	14.3

Table 51

Multiple-Choice and Written-Response Raw Score Totals
Physics 30

Examination Section	Total Marks	Weighting (%)	Average	Standard Deviation
Written Response	14	20	8.7	3.4
Multiple Choice	56	80	36.9	9.4

Table 52

Provincial Raw Score Averages for Subtests
Physics 30

Subtest	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Light	-	16	16	-	11.3	11.3
Electric and Magnetic Fields	3	16	19	2.6	10.8	13.3
EM Radiation	3	7	10	1.8	4.3	6.1
Structure of Matter	4	10	14	2.3	6.1	8.4
Modern Physical Theories	4	7	11	2.0	4.4	6.4
Process Skills	10	13	23	6.7	7.9	14.6

Table 53

Provincial Raw Score Averages for Cognitive Levels
Physics 30

Cognitive Levels	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Knowledge	-	24	24	-	15.2	15.2
Comprehension and Application	14	21	35	8.7	15.2	23.9
Higher Mental Activities	-	11	11	-	6.4	6.4

Multiple-Choice Questions

The percentage of students choosing each response for each multiple-choice question is given in Table 54. The correct response (key) for each question is also identified. Schools may use this information in conjunction with the test and with school results on individual items to determine local strengths and weaknesses.

Table 54

Results for Individual Multiple-Choice Questions
Physics 30

Item	Key	Distribution of Responses (%) A	B	C	D	Item	Key	Distribution of Responses (%) A	B	C	D
1	A	85.1	5.6	1.4	7.9	29	C	6.1	14.9	64.0	14.9
2	C	8.3	7.4	82.4	1.9	30	C	8.8	8.4	75.9	6.8
3	A	83.2	6.0	3.4	7.3	31	B	23.3	61.8	8.5	6.4
4	B	12.2	80.8	3.2	3.8	32	C	7.1	5.5	72.3	15.0
5	A	54.3	13.0	16.2	16.0	33	B	16.4	63.8	13.1	6.6
6	D	24.5	14.7	21.6	38.8	34	D	14.2	9.7	19.2	56.9
7	A	79.4	6.0	2.5	11.9	35	B	7.8	73.0	9.8	9.2
8	D	6.7	19.0	10.1	64.1	36	B	9.7	80.7	4.8	4.8
9	C	11.4	8.7	66.2	13.6	37	B	18.7	53.6	20.5	7.2
10	B	2.6	92.7	2.1	2.5	38	C	21.3	11.9	61.0	5.6
11	A	64.4	11.6	11.5	12.5	39	B	10.7	41.0	12.0	36.3
12	D	8.3	20.7	7.9	63.1	40	C	15.9	9.0	56.0	18.8
13	D	5.2	7.9	12.5	74.4	41	A	81.1	5.6	9.4	3.8
14	D	3.6	3.0	7.7	85.7	42	A	64.6	25.0	2.1	8.3
15	C	20.6	37.6	27.4	14.3	43	D	5.7	9.3	15.5	69.0
16	D	7.2	5.3	4.0	83.5	44	A	75.3	4.6	9.3	10.7
17	D	6.0	6.9	23.2	63.9	45	B	10.7	67.8	8.5	12.8
18	A	83.4	3.5	3.8	9.3	46	A	52.4	16.7	19.9	11.0
19	A	69.2	18.1	5.3	7.4	47	A	39.0	16.2	34.1	10.0
20	B	17.6	51.9	14.6	15.8	48	B	19.6	45.1	13.0	22.2
21	B	2.2	82.6	4.7	10.4	49	D	10.7	12.0	20.1	56.6
22	D	14.3	13.6	26.3	45.8	50	C	24.1	13.4	49.4	13.0
23	C	8.2	21.3	60.0	10.4	51	C	16.9	12.6	48.4	21.8
24	B	5.0	84.2	6.0	4.8	52	D	5.1	12.0	7.7	75.0
25	C	6.0	12.2	56.9	24.6	53	A	59.9	15.4	10.4	14.3
26	C	8.6	18.1	58.2	14.5	54	B	14.7	77.5	5.3	2.1
27	A	79.3	5.9	12.4	2.3	55	C	9.0	20.9	64.8	5.0
28	A	65.8	11.0	6.9	16.1	56	C	7.8	6.2	67.4	17.6

*The sum of the percentages for some questions is less than 100% because the No Response category is not included. This category does not exceed 1.1% for any question.

Table 55

Distribution of Marks for Written-Response Questions
Physics 30

Question	Students Obtaining Each Mark (%)					
	NR*	0	1	2	3	4
1	4.9	17.6	15.2	19.8	42.5	-
2	1.3	2.7	6.4	17.9	71.7	-
3	3.3	4.8	18.3	29.4	26.4	17.7
4	13.7	15.8	7.6	26.4	9.0	27.5

*No Response

The total number of marks possible, the average mark awarded to students, and the difficulty level for each written-response question are summarized in Table 56. The difficulty level is the average divided by total marks possible.

Table 56

Average Marks Awarded for Written-Response Questions
Physics 30

Question	Total Marks	Average	Difficulty Level
1	3	1.8	0.61
2	3	2.6	0.86
3	4	2.3	0.57
4	4	2.0	0.49

SECTION 9: SUMMARY OF RESULTS

In Table 57, the provincial distribution of student marks in the diploma examination courses is summarized. The percentage distribution for the school-awarded mark, the June 1986 diploma examination mark, and the final blended mark achieved by students is shown for each of the A, B, C, and F grade categories. In addition, a comparison with the June 1985 diploma examination course results is provided.

Table 57

Distribution of Student Marks in Diploma Examination Courses
June 1986 Examination Administration and June 1985 Final Course Mark[1]

Diploma Examination Course	June 1986 School-Awarded Mark	June 1986 Diploma Examination Mark	June 1986 Final Blended Mark	June 1985 Final Mark
English 30			N = 13 122	N = 12 664
A (80-100%)	13.0	8.3	8.7	7.9
B (65-79%)	38.6	36.4	39.1	38.9
C (50-64%)	39.3	44.1	46.9	46.9
F (0-49%)	9.1	11.1	5.4	6.3
Mean	64.6	63.2	64.3	63.9
Standard Deviation	12.2	11.5	10.7	10.8
English 33			N = 5 542	N = 6 352
A (80-100%)	3.2	9.8	3.9	3.1
B (65-79%)	29.6	45.0	37.5	35.7
C (50-64%)	51.7	33.8	51.5	54.0
F (0-49%)	15.5	11.4	7.0	7.1
Mean	59.2	64.8	62.5	61.8
Standard Deviation	11.2	12.3	9.9	9.5
Social Studies 30			N = 11 148	N = 10 977
A (80-100%)	15.8	17.0	15.2	10.4
B (65-79%)	37.2	41.3	40.8	37.7
C (50-64%)	38.6	29.5	37.3	42.6
F (0-49%)	8.4	12.2	6.8	9.3
Mean	65.4	66.4	66.2	63.9
Standard Deviation	12.6	13.6	12.3	12.0

[1]The figures may be changed slightly as a result of appeals of school-awarded marks, rereads of diploma examinations, or special cases considerations.

(Continued)

Table 57 (continued)

Diploma Examination Course	School-Awarded Mark	June 1986 Diploma Examination Mark	Final Blended Mark	June 1985 Final Mark
Mathematics 30			N = 9 386	N = 9 609
A (80-100%)	18.0	18.5	17.1	15.1
B (65-79%)	31.0	25.3	28.4	28.1
C (50-64%)	37.9	28.3	38.7	40.0
F (0-49%)	13.1	27.9	15.8	16.7
Mean	64.6	61.3	63.4	62.7
Standard Deviation	14.4	18.0	15.4	14.9
Biology 30			N = 9 736	N = 8 685
A (80-100%)	19.7	21.0	19.9	19.9
B (65-79%)	34.2	29.8	32.3	32.4
C (50-64%)	37.7	29.5	37.2	37.8
F (0-49%)	8.4	19.7	10.6	9.9
Mean	66.3	64.5	65.8	65.8
Standard Deviation	13.1	16.3	14.1	14.0
Chemistry 30			N = 8 518	N = 8 399
A (80-100%)	21.8	21.9	20.8	19.4
B (65-79%)	32.8	26.3	31.0	31.0
C (50-64%)	35.2	28.7	34.5	36.1
F (0-49%)	10.2	23.2	13.7	13.4
Mean	66.4	63.6	65.4	65.0
Standard Deviation	14.1	17.7	15.2	15.0
Physics 30			N = 5 141	N = 5 014
A (80-100%)	24.3	23.2	22.7	19.8
B (65-79%)	38.4	28.3	34.8	35.0
C (50-64%)	30.5	28.6	32.5	35.7
F (0-49%)	6.8	20.0	10.0	9.5
Mean	68.6	65.1	67.2	66.3
Standard Deviation	13.2	17.1	14.3	13.8

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Questions or comments regarding this report should be addressed to:

Frank G. Horvath
Associate Director, Humanities

or Jim Jeffrey
Associate Director, Mathematics, Sciences, and Analysis

Student Evaluation Branch
Alberta Education
Devonian Building, West Tower
11160 Jasper Avenue
EDMONTON, Alberta T5K 0L2
Phone: 427-5433